04-11-01 04CO #4

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: PACE MICRO TECHNOLOGY PLC)
)
Application No.: 09/805,867)
)
Filing Date: 03/14/01)
)
For: DIGITAL DATA PROCESSING FROM MULTIPLE STREAMS OF DATA)
)
Art Unit: UNKNOWN)

TRANSMITTAL OF PRIORITY DOCUMENT

Director for Patents and Trademarks
Washington, D.C. 20231

Dear Sir:

Enclosed herewith is a certified copy of British Patent Application No. 0006095.4 for which the above-identified patent application claims priority from.

If, for any reason, this priority document is not acceptable, please inform the undersigned as soon as possible.

Respectfully Submitted

HEAD, JOHNSON & KACHIGIAN

Date: 04/02/01

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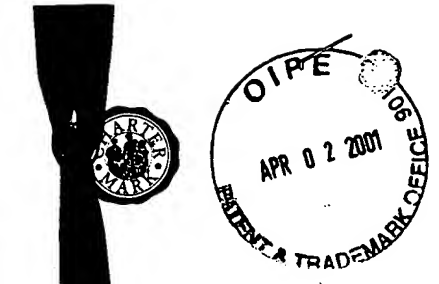
Date of Deposit: April 2, 2001
I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington D.C. 20231 by Terry Buck.

Terry Buck



INVESTOR IN PEOPLE

The Patent Office
Concept House
Cardiff Road
Newport
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NP10 8QQ

the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the omptroller-General, hereby certify that annexed hereto is a true copy of the documents as iginally filed in connection with the patent application identified therein.

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Signed M Cooke

Dated 16 March 2001

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15MAR00 E521132 D 0346
P01/7700 0.00-0006095.4

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Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

15 MAR 2000

The Patent Office
Cardiff Road
Newport
Gwent NP9 1RH

1. Your reference — GW-G29397

2. Patent application number *(The Patent Office will fill in this pa* — 0006095.4

3. Full name, address and postcode of the or of each applicant *(underline all surnames)*

Pace Micro Technology Plc

Victoria Road
Saltaire
Shipley
BD18 3LF

Patents ADP number *(if you know it)*

If the applicant is a corporate body, give the country/state of its incorporation — **U.K**

6905293001

4. Title of the invention — **Digital Data Processing from Multiple Streams of Data**

5. Name of your agent *(if you have one)* — **Bailey Walsh & Co.**

"Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*

5, York Place
Leeds
LS1 2SD

Patents ADP number *(if you know it)* — **224001**

6. If you are declaring priority from one or more earlier patent applications, give the and the date of filing of the or of each of these earlier applications and *(if you know it)* the or each application number

Country	Priority application number *(if you know it)*	Date of filing *(day / month / years)*

7. If this application is divided or otherwise derived from an earlier UK application, the earlier application

Number of earlier application	Date of filing *(day / month / years)*

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? *(Answer "Yes" if:*

Yes

a) any applicant named in part 3 is not an inventor, or

b) there is an inventor who is not named as an applicant, or

c) any named applicant is a corporate body

See note (d)

9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document.

Continuation sheets of this form	
Description	4
Claim(s)	
Abstract	
Drawing(s)	-

10. If you are also filing any of the following, state how many of each item.

Priority Documents	
Translations of priority documents	
Statement of inventorship and right to grant of a patent *(Patents Form 7/77)*	
Request for preliminary examination and search *(Patents Form 9/77)*	
Request for substantive examination *(Patents Form 10/77)*	
Any other documents *(Please specify)*	

11. I/We request the grant of a patent on the basis of this application

Signature

Date **14.03.00**

12. Name and daytime telephone number of person to contact in the United Kingdom

G Wood
0113 2433824

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Notes

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c) *If there is not enough space for all the relevant details on any part of this form, please continue on a separate sheet of paper and write "see continuation sheet" in the relevant part(s). Any continuation sheet should be attached to this form.*

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Digital Data Processing from Multiple Streams of Data

The invention to which this application relates is the processing of data which is received from a remote location, and typically data which is broadcast by a broadcaster, to a number of receivers, each provided in the premises of a subscriber. The data can represent any, or any combination, of video, audio and/or text and the receiver can process the data into a format for viewing and/or listening by a user via a display screen and/or speakers such as are provided in a television set. The television set can be connected to the receiver or the receiver can be provided as an integral part of the television set.

Typically, the digital data which is received is transmitted in multiple streams of data such as, for example a number of streams of video data, a number of audio data streams and so on. When received the data includes information for the receiver which allows the receiver to combine appropriate data streams together, such as an audio and video data stream, to form an identifiable television programme which can be watched by the user of the apparatus when they select the same. One form of receiver could include processing means which allow each stream of data to be processed into a form ready for display or listening, if selected. However this form of the receiver apparatus would be prohibitively expensive due to the need for a number of processing means for each data stream.

A known solution to this problem is set out in the applicant's co-pending patent application wherein the receiver is required to combine and construct from the multiple streams, a single combined stream of data which can then be processed using processing software and/or hardware in the receiver. As there is only a need to process the combine data stream the processing means required is

reduced and hence a receiver incorporating this feature can be manufactured at a commercially beneficial price.

The question of how the single stream of data can be constructed and combined from data packets from the plurality of streams of data which are received by the receiver is addressed in one form in the applicant's co-pending application.

The aim of the present invention is to provide further and alternative means of compiling and constructing the said single stream of data from the multiple streams of data received.

In a first aspect of the invention there is provided a receiver for receiving multiple streams of digital data which is transmitted from a remote location, said data in each stream comprising a series of packets of data and provided with associated codes to indicate the type of data i.e. video , audio and/or text, said receiver provided with means which allow the combination of selected packets of data from the said multiple streams of data in response to control commands, said selected packets of data combined to form a single stream of data and said single stream of data further processed to generate video and/or audio and/or text and wherein an identification code is added to the streams of data which identifies each of the streams of data received by the receiver.

In one embodiment the identification code is located with a transport packet of data which includes a series of identification codes housed which contain information relating to the packets of data in that stream of data.

In one embodiment the range of available identification codes can be extended by re-using existing, superfluous bits within the existing transport packet syntax said bits replaced by an

identification code or codes which identifies the streams of data being received.

In a further embodiment of the invention the additional identification codes are added by means of adding additional interface wires to the output of the device that combines the transport streams together.

In a yet further embodiment of the invention the identification codes for the multiple data streams are stored in a memory device to allow subsequent referral by the receiver to identify data streams.

Specific embodiments of the invention will now be described.

In a first embodiment the multiple data streams which are incoming to the receiver include a transport packet in which identification codes are stored. Conventionally each data stream includes a series of packets of data and the transport packet includes packet identification codes (PID's) which allow the receiver to identify the packets of data. However there is a problem in that the available PID's which can be used may run out and for this reason the range of available PIDs can be extended by making each transport packet longer and using the additional bits so created, to mark the transport packets from each transport streams with a transport stream Ids (TSID). The concentrated transport stream ID and PID will then identify packets of data uniquely with respect to the transport streams.

An alternative or additional example of a solution to the problem is to extend the range of available PIDs by re-using existing, superfluous bits within the existing transport packet syntax. For example, each transport packet currently starts with 0x47 byte. This syntactic element can be checked for prior to the time domain

multiplexing of the transport streams. Once syntax has been checked, the 0x47 byte can be replaced with a TSID identifier which distinguishes the different transport streams from each other in a similar fashion to the previous method.

A yet further alternative is to extend the range of the available PIDs by adding additional interface wires to the output of the device that is used to combine the transport streams together. The additional wires will also be required on any device that uses the output of the TS combiner. The wires will encode the TSID for the duration of packet transfer between devices. The TSID can then be used in a similar fashion to the two previous methods described.

In a yet further embodiment the TSID codes for the output transport stream packets can be held in a memory device in the form of a FIFO buffer which is then read by a connected device when it wishes to determine a unique component ID.

Thus the methods as herein illustrated allow components to be uniquely identified from within a time-domain multiplexing of multiple transport streams.